



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,445	02/24/2004	Yunzhang Wang	5602	8505
7590 Brenda D. Wentz Legal Department, M-495 PO Box 1926 Spartanburg, SC 29304		EXAMINER MATZEK, MATTHEW D		
		ART UNIT 1794		
		MAIL DATE 09/28/2009		
		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/785,445  
Filing Date: February 24, 2004  
Appellant(s): WANG ET AL.

---

Brenda Wentz  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 8/6/2009 appealing from the Office action mailed 3/9/2009.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

US 4,316,928	OTTO	2-1982
US 2003/0013795 A1	NUN et al.	8-2003
US 4,343,853	MORRISON	8-1982

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1-5, 8-27, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otto (US 4,316,928) in view of Nun et al. (US 2003/0013795 A1).

a. Otto discloses a method of making a fiber containing substrate, including steps of providing a fiber containing substrate (10) having a first surface and a second surface (see Fig. 1), and face finishing at least the first surface of the substrate. The face finishing is a mechanical treatment of the substrate, accomplished by exposing at least the first surface of the substrate to one or more abrasive surfaces (11,11a). The process of Otto provides a substantially uniform modification to the surface of the fabric (abstract). A wide variety of fabrics may benefit from being processed according to Otto including woven, knitted and nonwoven fabrics (col. 6, lines 25-30). The face finishing forms integral microscopic surface structures, as in claim 1; see col. 3, lines 19-59, col. 6, lines 53-54 (disclosing that the finish is not apparent to the naked eye), and Figs. 9 and 17, showing 350x magnification of the surface. Not all of the fibers are broken during the face finishing process of Otto. Depending on the operating conditions and the fibers being treated, the fabric may have few broken fibers although it may be characterized as having a very soft touch (col. 2, lines 7-12). Furthermore, individual synthetic fibers at or near the surface

of the fabric may actually be flattened, rather than broken during the mechanical surface finishing (col. 4, lines 1-21).

b. The substrate of Otto does have integral microscopic surface structures including projections (see protrusions disclosed in col. 3, lines 22-25) and the method of abrading disclosed by Otto would clearly result in the fabric having a roughened surface. The roughened surface may have a very soft touch (col. 2, lines 5-12). Example 1, looked at under magnification, has filaments broken to some extent but are predominately extensively modified by the formation of lamella shaped protrusions on the fiber surfaces and by the formation of scar type surface modifications on the fiber surfaces. The Gessner-sanded samples by contrast show a substantial number of cut and broken fibers with only very minor modifications of the surface characteristics of the individual fibers. The current claims recite "portions having a plurality of substantially unbroken fibers" and as such Examiner takes the position that since Example 1 only has some broken filaments, there would necessarily be portions of the surface of the article containing a plurality of substantially unbroken fibers, thereby meeting the claim. Furthermore, the applied reference explicitly teaches the surface of the treated fabric has "few broken fibers although it may be characterized as having a very soft touch" (col. 2, lines 7-11). This teaching clearly provides for the claimed "portions having a plurality of substantially unbroken fibers".

c. Claims 1, 32, 40 and 44 recite the use of diamond grit having an average grit size of from about 600 to about 1200 to form the integral microscopic surface structures. Otto discloses the use of sanding paper of grit size of about 600 (col. 8, lines 18-25) as

abrasive means in process that would form integral microscopic surface structures.

Examiner takes the position that since abrasive means with common grit size are used by Applicant and Otto the two processes would form the same integral microscopic surface structures. Otto fails to teach the use of a repellent component or the addition of small particles but does teach that various modifications may be resorted to without departing from the broader scope of the invention.

d. Nun et al. disclose a self-regenerating, self-cleaning hydrophobic surface formed when particles are secured on a carrier that is itself a mixture of particles and binder (abstract). Elevations and depressions are formed by particles being secured to the surface by the carrier [0030]. The preferred size of the particles ranges from 20 nm to 100 microns [0031]. The distance between adjacent particles on the surface ranges from 0 to 10 particle diameters [0033]. The particulate may be silica including fumed silica [0035]. The binding carrier that coats the surface of the article may be cross-linked [0040] and may comprise acrylates or urethane acrylates. It can be advantageous for the binding polymer to comprise compounds having fluorine-containing groups such as perfluorinated acrylic esters. The particles may be applied to fabrics for use as umbrellas [0065].

e. Otto and Nun et al. are from the same field of endeavor (i.e. treated fabrics).

f. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention of Otto with the coating of Nun et al. motivated by creating a self-cleaning, hydrophobic fabric as disclosed by Nun et al.

- g. Although Otto and Nun et al. do not explicitly teach the claimed Roughness factor and integral microscopic structure size, it is reasonable to presume that said property and structure is inherent to the combined invention. Support for said presumption is found in the use of like materials (mechanically surface-finished textile that requires 350x magnification to view the protrusions and the use of the same grit size as claimed to form said protrusions). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed Roughness factor and integral microscopic structure size would obviously have been present one the combined product is provided. Reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102. *In re Skoner, et al.* (CCPA) 186 USPQ 80.
  - h. Claim 27 is rejected as Otto provides a broad teaching as to the fabrics that may be surface-finished. This teaching is interpreted to include all conventional fabrics including a laid scrim.
- 4. Claims 40-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otto (US 4,316,928) in view of Nun et al. (US 2003/0013795 A1) as applied to claim 32 above, and further in view of Morrison (US 4,343,853). The disclosures of Otto and Nun et al. fail to teach the use of at least one additional layer of material.
  - a. Morrison teaches a “two-face” fabric comprising a visible face fabric and a backing fabric (col. 2, lines 10-68). A primary objective of the fabric is to create an article that is anti-microbial even though both fabric faces have not been treated (col. 3, lines 8-17).
  - b. Otto and Morrison are from the same field of endeavor (i.e. treated fabrics).



c. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the combined invention of Otto and Nun et al. with the second fabric layer of Morrison motivated by imparting anti-microbial protection to two fabric faces while maintaining the advantages of naturally occurring, untreated fibers in one of the fabrics (abstract, Morrison).

#### **(10) Response to Arguments**

1. Appellant argues that Otto fails to teach the use of diamond grit and Nun fails to teach mechanical face-finishing and as such their combination fails to teach or suggest the claimed invention. Otto teaches the use of mechanical face-finishing with a grit size that overlaps with the grit size claimed by Appellant. Appellant has failed to demonstrate how a fabric that is face-finished with the 600 grit would lead to an article with a Roughness Factor different from that of the claimed invention. Examiner takes the position that grit of Otto and the diamond grit of Appellant are functional equivalents that would lead to fabrics with the same Roughness Factor when grit size and fabric material are consistent between the two processes and articles formed. Appellant even establishes their functional equivalence in paragraph 0049 of their published application.
2. Appellants argues that they are very familiar with the Otto reference as it is co-owned along with the instant application and state that the Otto process is known to result in a treated

textile substrate that contains many broken fibers. Otto clearly points out that not all of the fibers are broken during the face-finishing process. Depending on the operating conditions and the fibers being treated, the fabric may have few broken fibers although it may be characterized as having a very soft touch (col. 2, lines 7-12). Furthermore, individual synthetic fibers at or near the surface of the fabric may actually be flattened during the mechanical surface finishing (col. 4, lines 1-21). When stating that Otto's process leads to many broken fibers, yet their's does not, they only point to grit size of the mechanical face finisher as a distinguishing factor. Examiner has already established that Appellant and Otto provide for the use of a grit size of about 600. Furthermore, Appellant has failed to claim or address the other process variables that contribute to the surface roughness and structural integrity of fabric being finished: (a) the tension of the textile substrate as the abrasive roll is presented, (b) the engagement pressure of the abrasive roll, (c) the relative speed of the roll's rotation compared to the textile's translation, and (d) the residence time of contact between the abrasive roll(s) and the textile. Without addressing these parameters how can Appellant begin to establish that Otto cannot make the claimed product? Appellant clearly acknowledges the importance of these parameters in their own specification [0049]. In light of the need to clearly address all of the parameters that go into face-finishing a fabric, it is unclear how Appellant can determine that Otto is incapable of producing a fabric with the claimed surface characteristics.

3. Appellant argues that Examiner has not properly considered the limitation of "having a plurality of substantially unbroken fibers" because Examiner has relied upon the figures of Otto, which are difficult to view. Furthermore, Otto clearly discloses the presence of broken fibers. The instant claims only recite the need for "portions having a plurality of substantially unbroken

fibers"; not a surface free of unbroken fibers. Examiner has pointed to the figures of Otto to illustrate that there are in fact portions of the surface that have unbroken fibers. Examiner has not relied upon these figures alone to meet this limitation. The face-finishing process forms integral microscopic surface structures, as in claim 1; see col. 3, lines 19-59, col. 6, lines 53-54 (disclosing that the finish is not apparent to the naked eye), and Figs. 9 and 17, showing 350x magnification of the surface. Not all of the fibers are broken during the face-finishing process of Otto. Depending on the operating conditions and the fibers being treated, the fabric may have *few* (emphasis added) broken fibers although it may be characterized as having a very soft touch (col. 2, lines 7-12). Furthermore, individual synthetic fibers at or near the surface of the fabric may actually be flattened, rather than broken, during the mechanical surface finishing (col. 4, lines 1-21).

4. Appellant argues that Nun et al. fail to provide for the limitation of "having a plurality of substantially unbroken fibers". Examiner has relied upon Otto, not Nun et al. to provide the aforementioned limitation. Nun has been relied upon to teach a repellent component to be added to the invention of Otto.

5. Appellant argues that Otto and Nun are not from the same field of endeavor and that it would not have been obvious to have modified Otto with Nun et al. because there is no motivation to combine the references. Otto teaches that various modifications may be resorted to without departing from the broader scope of the invention. Nun et al. disclose a self-regenerating, self-cleaning hydrophobic surface formed when particles are secured on a carrier that is itself a mixture of particles and binder which may be applied to flexible substrates such as umbrellas. It is readily apparent that textile fabrics would benefit from becoming self-cleaning

in that they would be soil and liquid resistant thereby allowing the treated textile to retain its original aesthetic. A holding of obviousness can be based on a showing that there was "an apparent reason to combine the known elements in the fashion claimed." KSR, 127 S. Ct. at 1740-41, 82 USPQ2d at 1396.

6. Appellant argues that Nun et al. fail to disclose any fiber-containing substrates. Examiner has only stated that Nun et al. teach the treatment of fabrics.

7. Appellant argues that there is no reasonable expectation of success in combining the inventions of Otto and Nun et al. because the rigid substrates would not be treatable by the processes of Otto in that they could not be fed through the rotating cylinders of the mechanical face-finisher. The flexible substrates taught by Nun et al., if treated by Otto, would result in the undesirable removal of the chemical treatment of Nun et al. Appellant has completely mischaracterized the basis for the combination of Otto and Nun et al. in making this argument. As set forth in the rejection *supra*, Examiner has combined the two references in such a manner that the face-finished fabric of Otto would undergo the self-cleaning hydrophobic treatment of Nun et al. by adding the particles and fluorocarbon containing chemical to the face-finished Otto fabric; not the other way around. The combination, in the form set forth by Examiner, would therefore have a reasonable expectation of success.

8. Appellant argues that the claimed Roughness Factor would not be inherent to the combination of Otto and Nun et al. in that "like materials" are not taught or suggested by the combination of the references. Otto teaches the use of mechanical face-finishing with a grit size that overlaps with the grit size claimed by Appellant. Appellant has failed to demonstrate how a fabric that is face-finished with the 600 grit of Otto would lead to an article with a Roughness

Factor different from that of the claimed invention. Examiner takes the position that grit of Otto and the diamond grit of Appellant are functional equivalents that would lead to fabrics with the same Roughness Factor when grit size and fabric material are consistent between the two processes and articles formed. Appellant even establishes their functional equivalence in paragraph 0049 of their published application. Appellant continues on to say that Otto fails to provide the details of the face-finishing process and as such it is improper to make the argument that the claimed properties are inherent to Otto. Examiner would like to point out that neither Otto nor Appellant has clearly set forth the details of the face-finishing processes used, except for the grit size of the abrasive. Otto has clearly stated that the parameters of the face finishing process are integral to the final product being formed and that they may be manipulated depending upon the desired final product (col. 2, lines 1-29). Examiner has met the process, structural and compositional limitations set forth in the instant claims and as such takes the position that the fabric of Otto and Nun et al. would possess the claimed properties. Appellant is invited to demonstrate how the applied art does not arrive at the claimed invention in light of the fact that no additional face-finishing parameters have been claimed.

9. Appellant argues that Morrison fails to cure the deficiencies of Otto in view of Nun et al. Examiner has relied upon Morrison to teach the imparting of anti-microbial protection to two fabric faces while maintaining the advantages of naturally occurring, untreated fibers in one of the fabrics (abstract, Morrison), not to cure the deficiencies of Otto and Nun et al. in rejecting claims 1-5, 8-27, 32 and 33.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Matthew D Matzek/  
Examiner, Art Unit 1794

Conferees:

/Rena L. Dye/  
Supervisory Patent Examiner, Art Unit 1794

/D. Lawrence Tarazano/  
Supervisory Patent Examiner, Art Unit 1794